

**AUTHORITY TO CONSTRUCT
ISSUED PURSUANT TO
PREVENTION OF SIGNIFICANT DETERIORATION (PSD)
REQUIREMENTS AT 40 CFR § 52.21**

**PSD PERMIT NUMBER SE 02-01
US ENVIRONMENTAL PROTECTION AGENCY, REGION IX**

PERMITTEE: Caithness Blythe II, L.L.C. (Blythe II)

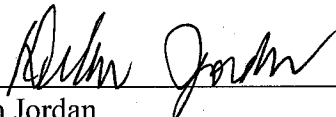
FACILITY LOCATION: Blythe, California in Eastern Riverside County

This Permit is issued pursuant to the Prevention of Significant Deterioration (PSD) requirements of the Clean Air Act, as amended, 42 U.S.C. §§ 7401 - 7671, et seq. Blythe II is granted approval to construct a power plant in Blythe, California, as described herein, in accordance with the permit application (and plans submitted with the permit application), federal regulations governing the Prevention of Significant Deterioration of air quality (40 CFR § 52.21), and other terms and conditions set forth in this PSD Permit.

Failure to comply with any condition or term set forth in this PSD Permit is subject to enforcement action pursuant to Section 113 of the Clean Air Act.

This PSD Permit does not relieve the Permittee from the responsibility to comply with any other applicable provisions of the Clean Air Act (including 40 CFR Parts 51, 52, 60, 61, 63, and 72 through 75), other federal, or Mojave Desert Air Quality Management District (District) requirements.

This PSD Permit becomes effective at the date of issuance pursuant to 40 CFR § 124.15(b)(3).



Deborah Jordan
Director, Air Division

4-25-07

Date

Project Description

This facility consists of two combustion turbine generators (CT), each vented to a heat recovery steam generator, and other associated equipment. The facility will install a selective catalytic reduction (SCR) system for each turbine, and shall design and construct the facility to accommodate the installation of an oxidation catalyst if necessary to meet the facility's carbon monoxide emission limits. The project is subject to the Prevention of Significant Deterioration Program for Carbon Monoxide (CO), Nitrogen Oxides (NO_x), and Particulate Matter under 10 microns in diameter.

Blythe Energy Project (BEP) II Equipment List

1. Gas Turbine: Natural-gas-fired F-class Siemens V84.3A CT generator (170 MW, 1776 MMBtu/hr rating), vented to a HRSG, sharing steam turbine (180 MW rating) with unit #2
2. Gas Turbine: Natural-gas-fired F-class Siemens V84.3A CT generator (170 MW, 1776 MMBtu/hr rating), vented to a HRSG, sharing steam turbine (180 MW rating) with unit #1
3. Duct Burner: Natural-gas-fired, rated at 132 MMBtu/hr
4. Duct Burner: Natural-gas-fired, rated at 132 MMBtu/hr
5. Internal Combustion (IC) Engine: 303-brake horse power, 14.5-gallon-per-hour diesel-fueled, powering emergency fire pump
5. Cooling Tower: 146,000 gallons per minute max. circulation rate
6. Evaporative Condenser (Inlet Chiller): 17,000 gallons per minute (gpm) max. circulation rate

**BLYTHER ENERGY PROJECT PHASE II (SE 02-01)
PERMIT CONDITIONS**

PERMIT CONDITIONS

I. Permit Expiration

As provided in 40 CFR 52.21(r), this PSD Permit shall become invalid if construction:

- A. is not commenced (as defined in 40 CFR 52.21(b)(9)) within 18 months after the approval takes effect; or
- B. is discontinued for a period of 18 months or more; or
- C. is not completed within a reasonable time.

II. Permit Notification Requirements

Permittee shall notify EPA Region 9 in writing or by electronic mail of the:

- A. date construction is commenced, postmarked within 30 days of such date.
- B. actual date of initial startup, as defined in 40 CFR 60.2, postmarked within 15 days of such date.
- C. date upon which initial performance tests will commence, in accordance with the provisions of Condition X.I, postmarked not less than 30 days prior to such date. Notification may be provided with the submittal of the performance test protocol required pursuant to Condition X.I
- D. date upon which initial performance evaluation of the CEMS will commence in accordance with 40 CFR 60.13(c), postmarked not less than 30 days prior to such date. Notification may be provided with the submittal of the CEMS performance test protocol required pursuant to Condition X.H.

III. Facility Operation

At all times, including periods of startup, shutdown, shakedown, and malfunction, Permittee

shall, to the extent practicable, maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPA which may include, but is not limited to, monitoring results, opacity observations, review of operating maintenance procedures and inspection of the source.

IV. Malfunction Reporting

- A. Permittee shall notify EPA at Aeo.R9@epa.gov within two (2) working days following the discovery of any failure of air pollution control equipment, process equipment, or of a process to operate in a normal manner, which results in an increase in emissions above the allowable emission limits stated in Section X of this permit.
- B. In addition, Permittee shall provide an additional notification to EPA in writing or electronic mail within fifteen (15) days of any such failure described under Condition IV.A. This notification shall include a description of the malfunctioning equipment or abnormal operation, the date of the initial malfunction, the period of time over which emissions were increased due to the failure, the cause of the failure, the estimated resultant emissions in excess of those allowed in Section X, and the methods utilized to mitigate emissions and restore normal operations.
- C. Compliance with this malfunction notification provision shall not excuse or otherwise constitute a defense to any violation of this permit or any law or regulation such malfunction may cause.

V. Right of Entry

The EPA Regional Administrator, and/or an authorized representative, upon the presentation of credentials, shall be permitted:

- A. to enter the premises where the source is located or where any records are required to be kept under the terms and conditions of this PSD Permit; and
- B. during normal business hours, to have access to and to copy any records required to be kept under the terms and conditions of this PSD Permit; and
- C. to inspect any equipment, operation, or method subject to requirements in this PSD Permit; and

D. to sample materials and emissions from the source(s).

VI. Transfer of Ownership

In the event of any changes in control or ownership of the facilities to be constructed, this PSD Permit shall be binding on all subsequent owners and operators. Permittee shall notify the succeeding owner and operator of the existence of this PSD Permit and its conditions by letter, a copy of which shall be forwarded to EPA Region 9.

VII. Severability

The provisions of this PSD Permit are severable, and, if any provision of the PSD Permit is held invalid, the remainder of this PSD Permit shall not be affected.

VIII. Other Applicable Regulations (Compliance with Environmental Laws)

Permittee shall construct and operate this project in compliance with this PSD permit and all other applicable federal, state, and local air quality regulations. This PSD permit does not release the Permittee from any liability for compliance with other applicable federal, state and local environmental laws and regulations, including the Clean Air Act.

IX. Reserved

X. Special Conditions

A. Annual Facility Emission Limits:

Annual Emissions from the facility shall not exceed the following:

NO _x	CO	PM ₁₀
202 tons per year	684 tons per year	61 tons per year

B. Air Pollution Control Equipment and Operation

On or before the date of initial start-up of the power plant (as defined in 40 C.F.R. 60.2), and thereafter, except as noted below in section X.E., the Permittee shall install, continuously operate, and maintain a Selective Catalytic Reduction (SCR) system for control of NO_x and perform any necessary operations to minimize emissions so that emissions are at or below the emission limits specified in this permit.

The Permittee shall ensure that the duct burners are not operated unless the associated turbine units are in operation.

C. Gas Turbine Emission Limits for NO_x (calculated as NO₂) and CO

Except as noted below under condition X.E, on and after the date of initial start-up, Permittee shall not discharge or cause the discharge of emissions from each combustion turbine generator (CTG) unit into the atmosphere in excess of the following:

	Lbs/hr	Concentration
NO_x	14.8 lb/hr	2.0 ppmvd @ 15% O ₂ and averaged over three hours
CO	18.0 lb/hr	4.0 ppmvd @ 15 % O ₂ and averaged over three hours

D. Gas Turbine Emission Limits for PM₁₀

1. Permittee shall restrict fuel use for the operation of the combustion turbines and supplemental duct firing to Public Utility Commission (PUC) quality natural gas with a sulfur content of no more than 0.5 grains per 100 scf on a rolling twelve-month average basis.
2. On and after the date of initial start-up, Permittee shall not discharge or cause the discharge of PM₁₀ from each CTG in excess of 6.0 lb/hr.

E. Requirements during Startup and Shutdown Periods

1. During the startup and shutdown periods defined in Condition E.2 below, the emissions from each CTG and associated Heat Recovery Steam Generator (HRSG) unit, verified by the Continuous Emissions Monitoring System (CEMS), shall not exceed the following for each start-up or shut-down event :

	NO_x	CO	Allowable Duration
Cold Startup	376 lbs per event	3600 lbs per event	4 hours
Warm and Hot Startup	278 lbs per event	2200 lbs per event	2.25 hours
Shutdown	170 lbs per event	48 lbs per event	0.5 hours

2. Startup is defined as the period beginning with ignition and lasting until either the equipment complies with all operating permit limits for two consecutive 15-minute averaging periods or the maximum time allowed for the event after ignition, whichever occurs first. A cold startup means a startup when the CTG has not been in operation during the preceding 48 hours. Warm and hot start-ups include all start-ups that are not a cold start-up. Shutdown is defined as the period beginning with the lowering of equipment from base load and lasting until fuel flow is completely off and combustion has ceased.
3. The Permittee must operate the CEMS during start-ups and shutdowns.
4. The Permittee must record the time, date, and duration of each start-up and shutdown event. The records must include calculations of emissions during each event based on the CEMS data. These records must be kept for five years following the date of such event.
5. The SCR system shall be operated as soon as the SCR reaches an operating temperature of 450 degrees Fahrenheit.

F. Fire Pump Emission Limits

1. Usage shall be limited to emergency fire-fighting, and for a testing program that does not exceed 60 minutes of testing operation per week (and up to two hours once per year for annual testing and up to four hours once every three years for triennial testing).
2. Emissions shall not exceed 7.5 lbs NO_x per hour, 0.70 lbs CO per hour, and 0.1 lbs PM₁₀ per hour.
3. Permittee shall use only diesel fuel whose sulfur concentration is less than or equal to 0.05% by weight.

G. Cooling Tower and Evaporative Cooler Emission Limits

1. The cooling tower drift rate shall not exceed 0.0006 % with a maximum circulation rate of 146,000 gallons per minute (gpm), and the maximum total dissolved solids (TDS) shall not exceed 8190 ppm.
2. The evaporative cooler drift rate shall not exceed 0.0006 % with a maximum circulation rate of 17,000 gallons per minute (gpm), and the maximum total dissolved solids (TDS) shall not exceed 8190 ppm.

3. The maximum hourly PM₁₀ emission rate from this cooling tower and the evaporative condenser combined shall not exceed 2.0 lbs/hr. Permittee shall calculate PM₁₀ emission rate using an US EPA-approved calculation based on the TDS and water circulation rate.
4. Permittee shall perform weekly tests of the blow-down water quality using a US EPA approved method. The operator shall maintain a log that contains the date and result of each blow-down water quality test, and the resulting mass emission rate. This log shall be maintained on site for a minimum of five years and shall be provided to US EPA and District personnel on request.
5. The operator shall conduct all required cooling tower water quality tests in accordance with an EPA-approved test and emissions calculation protocol. Thirty (30) days prior to the first such test the operator shall provide a written test and emissions calculation protocol for EPA review and approval, with a copy to the District as specified in condition XI below.
6. A maintenance procedure shall be established that states how often and what procedures will be used to ensure the integrity of the drift eliminators, to ensure that the TDS limits are not exceeded, and compliance with recirculation rates. This procedure is to be kept onsite and available to US EPA and District personnel on request. The permittee shall promptly report any deviations from this procedure.

H. Continuous Emissions Monitoring System (CEMS)

1. At the earliest feasible opportunity, in accordance with the recommendations of the equipment manufacturer and the construction contractor, Permittee shall install, and thereafter operate, maintain, certify, and quality-assure a continuous emission monitoring system (CEMS) for each combustion turbine which measures stack gas NO_x, CO, and O₂ concentrations in ppmv. The concentration shall be corrected to 15% O₂ on a dry basis.
2. The CEMS shall meet the applicable requirements of 40 CFR 60 Appendix B, Performance Specifications 2 and 3, and 40 CFR Part 60 Appendix F, Procedure 1, except that the relative accuracy requirement for the CO CEMS shall be 20% relative accuracy. At the Source's discretion, a Part 75 linearity test may be substituted for the quarterly Appendix F Cylinder Gas Audit.
3. The performance evaluation of the CEMS may either be conducted separately, as specified in 40 CFR 60.334(b)(1), or as part of the initial performance test of each emission unit. CEMS must undergo and pass initial performance

specification testing on or before the date of the initial performance test.

4. CEMs shall meet the requirements of 40 CFR 60.13. Data sampling, analyzing, and recording shall also be adequate to demonstrate compliance with emission limits during start-up and shut-down.
5. Not less than 90 days prior to the date of initial startup of the Facility, the Permittee shall submit to the EPA a quality assurance project plan for the certification and operation of the continuous emission monitors. Such a plan shall conform to EPA requirements contained in 40 CFR 60, Appendix F for CO, NO₂, and O₂, and 40 CFR 75 Appendix B for stack flow. The plan shall be updated and resubmitted upon request by EPA. The protocol shall specify how emissions during start-ups and shut-downs will be determined, including quantifying flow accurately if calculations are used.
6. Permittee shall submit a CEMS performance test protocol to the EPA no later than 30 days prior to the test date to allow review of the test plan and to arrange for an observer to be present at the test. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by EPA.
7. Permittee shall furnish the EPA a written report of the results of performance tests within 60 days of completion.
8. Prior to the date of initial start-up Permittee shall install, and thereafter maintain and operate, continuous monitoring and recording systems to measure and record the following operational parameters:
 - a. The ammonia injection rate of the ammonia injection system of the SCR.
 - b. Exhaust gas temperature at the inlet to the SCR reactor
 - c. The stack gas volumetric flow rates. The system for flow rate measurements shall meet EPA Performance Specifications 40 CFR 52, Appendix E. Calculations of stack flow shall use the appropriate F factor from 40 CFR 60 Appendix A Method 19, the O₂ monitor, and a fuel flow meter(s) which meets the requirements of 40 CFR 75 Appendix D 2.1.5 and 2.1.6.

I. Performance Tests

1. Within 60 days after achieving the maximum production rate the facility will operate at, but not later than 120 days after the initial start-up of equipment, and annually thereafter (within 30 days of the initial performance test anniversary), Permittee shall conduct performance tests (as described in 40 CFR 60.8) for NO_x and CO emissions from each gas turbine. The annual test shall be performed in accordance with the requirements of 40 CFR Part 60,

Appendix F, Procedure 1, Section 5.11.

2. Permittee shall submit a performance test protocol to EPA no later than 30 days prior to the test to allow review of the test plan and to arrange for an observer to be present at the test. The performance test shall be conducted in accordance with the submitted protocol, and any changes required by EPA.
3. Performance tests shall be conducted in accordance with the test methods set forth in 40 CFR 60.8 and 40 CFR Appendix A, as modified below:
 - a. EPA Methods 1-4 and 7E if NO_x emissions are measured in ppmv.
 - b. EPA Methods 1-4 and 19 if NO_x emissions are measured on a heat input basis.
 - c. EPA Methods 1-4 and 10 for CO emissions.
 - d. the provisions of 40 CFR Part 60.8 (f).

In lieu of the specified test methods, equivalent methods may be used with prior written approval from EPA.

4. The initial performance test conducted after initial startup shall use the test procedures for a 'high NO₂ emission site,' as specified in San Diego Test Method 100, to measure NO₂ emissions. The source shall be classified as either a 'low' or 'high' NO₂ emission site based on these test results. If the emission source is classified as a:
 - a. 'high NO₂ emission site,' then each subsequent performance test shall use the test procedures for a 'high NO₂ emission site,' as specified in San Diego Test Method 100.
 - b. 'low NO₂ emission site,' then the test procedures for a 'high NO₂ emission site,' as specified in San Diego Test Method 100, shall be performed once every five years to verify the source's classification as a 'low NO₂ emission site.'
5. The performance test methods specified in Condition X.H.3., may be modified as follows:
 - a. Perform a minimum of 9 reference method runs, with a minimum time per run of 21 minutes, at a single load level, between 90 and 100 percent of peak (or the highest physically achievable) load.
 - b. Use the test data both to demonstrate compliance with the applicable NO_x and CO emission limit and to provide the required reference method data for the RATA of the CEMS.
6. For performance test purposes, sampling ports, platforms, and access shall be provided on the emission unit exhaust system in accordance with the requirements of 40 CFR 60.8(e).

7. Permittee shall furnish the EPA a written report of the results of performance tests within 60 days of completion.
8. Upon written request from the Permittee, and adequate justification, EPA may waive a specific annual test and/or allow for testing to be done at less than maximum operating capacity.
9. The CEMS shall be tested annually and quarterly in accordance with the requirements of 40 CFR 60 Appendix F, Procedure 1. Permittee shall perform a full stack traverse during initial run of annual RATA testing of the CEMS, with testing points selected according to 40 CFR part 60 Appendix A Method 1. If no points vary by 10% or more on the initial traverse, permittee may discontinue stack traverse for subsequent runs for that individual RATA. Otherwise, permittee shall continue full stack traverse for all runs.

J. Recordkeeping and Reporting

1. Permittee shall maintain CEMS records that contain the following: the occurrence and duration of any startup, shutdown, shakedown, or malfunction, performance testing, evaluations, calibrations, checks, adjustments, maintenance, duration of any periods during which a continuous monitoring system or monitoring device is inoperative, and corresponding emission measurements.
2. Permittee shall maintain records and submit a written report of all excess emissions to EPA semi-annually. The report is due on the 30th day following the end of the calendar quarter and shall include the following:
 - a. Time intervals, data and magnitude of the excess emissions, the nature and cause (if known), corrective actions taken and preventive measures adopted;
 - b. Applicable time and date of each period during which the CEMS was inoperative (monitor down-time), except for zero and span checks, and the nature of CEMS repairs or adjustments; and
 - c. A negative declaration when no excess emissions occurred or when the CEMS has not been inoperative, repaired, or adjusted.
3. Excess emissions shall be defined as any period in which the facility emissions exceed the maximum emission limits set forth in this permit
4. A period of monitor down-time shall be any unit operating hour in which sufficient data are not obtained to validate the hour for NO_x, CO or O₂.
5. Excess emissions indicated by the CEM system shall be considered violations of the applicable emission limit for the purpose of this permit.

6. All records required by this PSD Permit shall be retained for five years following the date of such measurements, maintenance, and reports.

K. Shakedown Periods

The combustion turbine emission limits and requirements in Sections X.B, X.C, and X.E. shall not apply during combustion shakedown periods. Shakedown is defined as the period beginning with initial startup and ending no later than initial performance testing, during which the Permittee conducts operational and contractual testing and tuning to ensure the safe, efficient and reliable operation of the plant. The requirement of section III of this permit shall apply at all times.

XI. Agency Notifications

All correspondence as required by this Approval to Construct/Modify must be forwarded to:

- A. Director, Air Division (Attn: AIR-5)
EPA Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Email: Aeo.R9@epa.gov
Fax: (415) 947-3579
- B. Air Pollution Control Officer
Mojave Desert Air Quality Management District
14306 Park Avenue
Victorville, CA 92392-2310